IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Inventor(s): Byers et al.

Case No.:	Byers 44-6	Examiner:	Agustin Bello
Serial No.:	09/932,707	Art Unit:	2633
Filing Date:	08/17/2001		

Title: Installation of Processing Units into a Stored Program Controlled System Wherein the Component Processing Units are Interconnected Via Free Space Optics

AFFIDAVIT OF CHARLES C. BYERS

I, Charles C. Byers, having been warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon, declare:

1. I am an inventor of the invention that is the subject of this patent application.

2. I am more than 30 years of age, and for all times relevant to this invention and subject patent application resided at and continue to reside in the state of Illinois, USA.

3. I hold the following degrees awarded in the year and by the institution indicated for each:

B.S. Electrical and Computer Engineering	1984	University of Wisconsin
M.S. EE	1985	University of Wisconsin

4. I have continuously worked for AT&T and now its spin-off corporation, Lucent Technologies Inc., since (year). During this time I have worked on the design and development of telecommunication systems, switches, devices and communication protocols including optical communications techniques.

5. I hold more than 30 U. S. Patents in the field of telecommunications.

6. I have read and understand the currently pending claims 1-17 of the subject patent application.

7. I have read the Office Action of January 25, 2006 by Examiner Agustin Bello.

8. I have read and analyzed U.S. Patent No. 5,500,523 (Hamanaka) which is relied upon in the Office Action of January 25, 2006 to support a rejection of claims 1-17 under 35 U.S.C. 103(a).

9. A person of ordinary skill in the subject art will have a bachelor's degree in electrical or optical engineering, and 3 years of telecommunication work experience.

10. Currently pending claim 1 is directed to a processing unit and includes:

> "an aperture for passage of [a free space] beam line configured to permit installation and removal of said processing unit without blocking said beam line'.

11. Hamanaka is directed to an optical information transmitting device and method for manufacturing it. In Hamanaka, a plurality of circuit boards 11, see FIGs. 1 and 2, each include an opening 11a having a sandwich of three glass substrates 30 disposed over this opening. The circuit boards 11 are inserted into and removed from slots in motherboard 20 as shown in FIG. 4. A circuit board is disposed within a slot of the motherboard so that the sandwich of glass substrates and a corresponding air opening in the circuit board are aligned to receive a propagated optical beam A - A' that flows perpendicular to the glass substrates and opening, see FIG. 2.

12. In paragraph 3 of said Office Action, the description and drawings of Hamanaka are interpreted by the examiner such that the bottom edge of the circuit board 11 is alleged not to extend the entire length of the circuit board. This interpretation is explained as:

> In fact, the possibility exists that the cross-hatched area shown in FIG.'s 2 and 4 is simply a leg or standoff used to properly position the board a desired height from the element 50 shown in FIG.'s 4 and 5, and that the window portion of the processing unit forms a "T" around the standoff legs. This possibility is supported by Hamanaka's

disclosure that the "electronic circuit board 11 has an opening 11a defined in one end thereof."

13. In Hamanaka, FIG. 2 is described in the Brief Description of the Drawings as: "FIG. 2 is an enlarged fragmentary cross-sectional view of the electronic circuit Board shown in FIG. 1, the view being taken along an optical path." One of ordinary skill in the art, based on this explanation and the description provided in the text and other drawings of Hamanaka, would understand that FIG. 2 shows the circuit board of FIG. 1 in a partial side cross-sectional view where the bisecting plane of the board of FIG. 1 to create the rendering of FIG. 2 is taken along the path of optical beam A - A' as labeled in FIG. 2.

14. In FIG. 2 of Hamanaka, the bottom cross-hatched area representing board 11 is disposed directly below the optical beam. One of ordinary skill in the art would understand that this bottom area of the circuit board lies directly below and in the plane of the optical beam because it is shown with the same cross-hatch pattern as shown for the circuit board above opening 11a and the view of FIG. 2 is specifically described as being taken along the optical path.

15. One of ordinary skill the art based on the description and drawings of Hamanaka would understand that its circuit board 11 would have a bottom portion extending directly below the optical path and that the insertion or removal of the circuit board 11 from or into a slot of the motherboard 20 would cause a disruption, i.e. blocking, of the optical beam. The bottom edge of the circuit board is disposed in the same plane as the bottom edge of the glass substrates; see FIGs. 2, 4 and 5.

16. The examiner interprets Hamanaka such that the bottom cross-hatched area below the opening 11a as seen in FIG. 2 represents simply a leg or standoff forming a "T" around the window portion. Assuming for purposes of argument only, that the bottom cross-hatched area below the opening 11a of circuit board 11 was a leg attached to the circuit board, such a leg is still shown in a cross-hatched format indicating that it is physically cut, i.e. in the same plane as the optical beam. Therefore, such a leg would itself block the optical beam upon board 11 being inserted into or removed from the slot of the motherboard. One of ordinary skill the art would clearly interpret the bottom cross-hatched area below the opening 11a as seen in FIG. 2 of Hamanaka as disposed below the optical beam line A - A',

otherwise this bottom area would not be shown in crosshatched format in accordance with accepted drafting rules.

17. Regarding reliance on the phrase in Hamanaka that: "electronic circuit board 11 has an opening 11a defined in one end thereof". One of ordinary skill in the art would interpret that phase in view of the other text descriptions and more specific drawings of Hamanaka, and would understand that reference to "in one end" is not an exact location specification and does not require the opening to be concurrent with the distal-most edge of the circuit board.

18. As shown in FIG. 2 of Hamanaka, the optical beam line passes through the sandwich of glass substrates 30 and then through the air opening 11a of circuit board 11. One of ordinary skill the art would know that the index of refraction of the multiple glass substrates 30 complete with arrays 31, 32 will be different from the index of refraction of air (in the opening window 11a). Regardless of the index of refraction of the rod lenses 2 used in the motherboard 20 to conduct the optical beam from board to board, the insertion or removal of a circuit board having an air opening and glass substrates with different indexes of refraction relative to the rod lenses and will cause a temporary dispersion of the optical beam, especially due to edge effect light bending as the edges of the air opening and glass substrates cross the optical beam, causing a temporary interruption/blockage of the flow of the beam. Thus, a temporary blockage/disruption of the optical beam will occur upon the insertion or removal of a printed circuit board as described in Hamanaka from the slots in the motherboard.

19. All statements made of my own knowledge are true and that all statements made on information and belief are believed to be true.

Charles C. Byers

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Date: March 3, 2006